THE MCS PRISMED CRUISE, PART 1 : THE OUTER AND CENTRAL MEDITERRANEAN RIDGE

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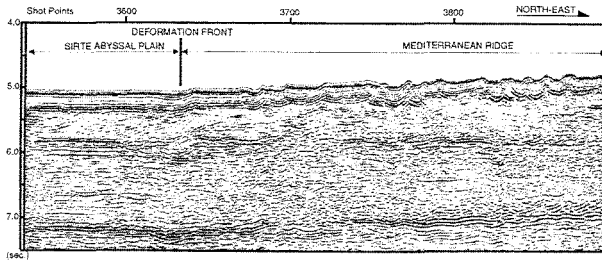
In eastern Mediterranean, the Mediteranean Ridge (M.R.) consists of a huge pile of accreted sediments in response to the convergent motions between the African, European and Aegean plates respectively. The multichannel seismic reflection Primed cruise (March 1993) has provided new images of internal deformations occurring within this specific pre-collisional sedimentary wedge.

1 - Between the Sirte abyssal plain and the western Hellenic trench area, the occurence of southward-directed thrusts, northward-directed back-up thrusts as well as the presence of a well evidenced decollement level clearly substantiate the accretionnary mechanism at the origin of the MR. Messinian evaporitic layers likely play the major part within the MR recent deformation history.

2 - South of Crete and facing the undeformed continental margin and Lybian promontory, the outer MR is chiefly expressed by an highly deformed wedge of sediments bounded by steep and rather irregular slope. Messinian sediments are also clearly involved in the tectonic accretion processes. In this area the central M.R., characterized by mud diapiric activities, is bounded, both northward and southward, by major thrust zones.

3 - In its eastern sector, facing the thickly sedimented Herodotus abyssal plain, the MR deformation outer front is characterized by steep reverse faulting and associated wide anticlines and accompanying piggy-back basins. There, the central M.R. exhibits large wave-lenght folding and is bounded, on its northward side, by major back thrust features.

The dominant factors that seem to control the present day M.R. structural styles relate to the nature and thickness of, both, the sedimentary cover and crust of the subducting forelands. The maximum shortening characterizes the central M.R. domain clearly directly involved in collisional processes against the Lybian promontory.



The M. R. outer deformation front facing the Sirte abyssal plain